

ABSTRACT

An optical functional waveguide having a small size, used with saved energy, controlling the phase of light at high speed, and adjusting the optical path length. The optical functional waveguide comprises a substrate (11), a quartz waveguide clad (12), a quartz waveguide core (13), groove structures (14), a filling material (15), and heater electrode (16). The filling material (15) placed in the groove structures (14) is, e.g., a resin transparent to the wavelength region of the guided light, and the refractive index temperature coefficient is about 10 to 100 times that of quartz. The heater electrode (16) is interposed between the groove structures (14) provided along the optical path. Therefore, the temperature of the filling material (15) can be varied sharply and quickly with small energy.